

DATE: 11/05/2001

TIME: 13:21:01

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/619,310

Input Set : A:\2001-09-28 seqlist.ST25.txt
Output Set: N:\CRF3\11022001\1619310.raw

5 <110> APPLICANT: BioImage A/S Thastrup, Ole 11 <120> TITLE OF INVENTION: Novel Florescent Proteins 15 <130> FILE REFERENCE: 3759-0106P C--> 19 <140> CURRENT APPLICATION NUMBER: US/09/619,310 C--> 21 <141> CURRENT FILING DATE: 2000-07-19 25 <160> NUMBER OF SEQ ID NOS: 8 29 <170> SOFTWARE: PatentIn version 3.1 33 <210> SEO ID NO: 1 ENTERED 35 <211> LENGTH: 764 37 <212> TYPE: DNA 39 <213> ORGANISM: Aequorea victoria 43 <220> FEATURE: 45 <221> NAME/KEY: CDS 47 <222> LOCATION: (8)..(721) 49 <223> OTHER INFORMATION: 53 <400> SEQUENCE: 1. 54 aagcttt atg agt aaa gga gaa ctt ttc act gga gtt gtc cca att 49 Met Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile 55 56 58 ctt gtt gaa tta gat ggc gat gtt aat ggg caa aaa ttc tct gtt agt 97 59 Leu Val Glu Leu Asp Gly Asp Val Asn Gly Gln Lys Phe Ser Val Ser 145 62 gga gag ggt gaa ggt gat gca aca tac gga aaa ctt acc ctt aaa ttt 63 Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe 35 40 66 att tgc act act ggg aag cta cct gtt cca tgg cca acg ctt gtc act 193 67 Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr 50 68 241 70 act ttc tct tat ggt gtt caa tgc ttt tca aga tac cca gat cat atg 71 Thr Phe Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met 70 289 74 aaa cag cat gac ttt ttc aag agt gcc atg ccc gaa ggt tat gta cag 75 Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln 85 337 78 gaa aga act ata ttt tac aaa gat gac ggg aac tac aag aca cgt gct 79 Glu Arg Thr Ile Phe Tyr Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala 100 82 gaa gtc aag ttt gaa ggt gat acc ctt gtt aat aga atc gag tta aaa 385 83 Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys 115 120 86 ggt att gat ttt aaa gaa gat gga aac att ctt gga cac aaa atg gaa 433 87 Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Met Glu 88 130 135 90 tac aac tat aac tca cat aat gta tac atc atg gca gac aaa cca aag 481 91 Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Pro Lys 155 92 145 150

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| 94 aat gga atc aaa gtt aac ttc aaa att aga cac aac att aaa gat gga 95 Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp Gly 96 160 165 170 | 529 |
|--|-------|
| 98 ago gtt caa tta goa gao cat tat caa caa aat act coa att ggo gat | . 577 |
| 99 Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp | . 3,, |
| 100 175 180 185 190 | ٠ |
| 102 ggc cct gtc ctt tta cca gac aac cat tac ctg tcc acg caa tct gcc | 625 |
| 103 Gly Pro Val Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala | |
| 104 195 200 205 | |
| 106 ctt tcc aaa gat ccc aac gaa aag aga gat cac atg atc ctt ctt gag | 673 |
| 107 Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu Glu | |
| 108 210 215 220 | |
| 110 ttt gta aca gct gct ggg att aca cat ggc atg gat gaa cta tac aaa | 721 |
| 111 Phe Val Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys | |
| 112 225 230 235 | • |
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| 130 1 5 10 15 | |
| 133 Glu Leu Asp Gly Asp Val Asn Gly Gln Lys Phe Ser Val Ser Gly Glu | • |
| 134 20 25 30 | |
| 137 Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys | |
| 138 35 40 45 | |
| 141 Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe | |
| 142 50 55 60 | |
| 145 Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln 146 65 70 75 80 | |
| 146 65 70 75 80 149 His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg | |
| 150 85 90 95 | |
| 153 Thr Ile Phe Tyr Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val | |
| 153 THE THE TYP BYS ASP ASP OF ASH TYP BYS THE MIGHT OF ACT OF THE TYPE BYS ASP ASP ASP OF THE TYPE BYS THE MIGHT OF THE TYPE BYS ASP ASP ASP ASP ASP ASP ASP ASP ASP AS | |
| 157 Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile | |
| 158 115 120 125 | |
| 161 Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Met Glu Tyr Asn | |
| 162 130 135 140 | |
| 165 Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Pro Lys Asn Gly | |
| 166 145 150 155 160 | |
| 169 Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp Gly Ser Val | |
| 170 165 170 175 | |
| 173 Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro | |
| 174 180 185 190 | |
| 177 Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser | |
| 178 195 200 205 | |
| 181 Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu Glu Phe Val | |
| 182 210 215 220 | |

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| | Ala | Ala | Gly | Ile | | His | Gly | Met | Asp | | Leu | Tyr | Lys | | | |
|------|--|---|---|--|-------|-------------|------|-----|------|------|------|------|------|---|-----|-----|
| | | | | _ | 230 | | | | | 235 | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | 57 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
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| | | | | | CION | : | | | | | | | | | | |
| | | | | | | | • | | | | | | | | | |
| | | | | | | | | | | | | | | | | 48 |
| Met | Ser | Lys | Gly | Glu | Glu | Leu | Phe | Thr | Gly | Val | Val | Pro | Ile | Leu | Val | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | | | | | | | | | | | | | | | | 96 |
| Glu | Leu | Asp | Gly | Asp | Val | Asn | Gly | Gln | Lys | Phe | Ser | Val | Ser | Gly | Glu | |
| | | | 20 | | | | | 25 | | • | | | 30 | | | |
| ggt | gaa | ggt | gat | gca | aca | tac | gga | aaa | ctt | acc | ctt | aaa | ttt | att | tgc | 144 |
| Gly | Glu | Gly | Asp | Ala | Thr | Tyr | Gly | Lys | Leu | Thr | Leu | Lys | Phe | Ile | Cys | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| act | act | ggg | aag | cta | cct | gtt | cca | tgg | cca | acg | ctt | gtc | act | act | ctc | 192 |
| Thr | Thr | Gly | Lys | Leu | Pro | Val | Pro | Trp | Pro | Thr | Leu | Val | Thr | Thr | Leu | |
| | 50 | _ | _ | | | 55 | | | | | 60 | | | | | |
| tct | cat | ggt | gtt | caa | tgc | ttt | tct | aga | tac | cca | gat | cat | atg | aaa | cag | 240 |
| | | | - | | _ | | | _ | | | - | | | | | |
| 65' | | - | | | 70 | | | _ | - | 75 | - | | | - | 80 | |
| cat | qac | ttt | ttc | aaq | aqt | qcc | atg | ccc | qaa | ggt | tat | gta | caq | qaa | aga | 288 |
| | | | | | | | | | | | | | | | | |
| | | | | 85 | | | | | 90 | _ | - | | | 95 | , | |
| act | ata | ttt | tac | aaa | gat | qac | aaa | aac | tac | aaq | aca | cat | qct | qaa | qtc | 336 |
| | | | | | | | | | | | | | | | | |
| | | | _ | | | | - 1 | | * | 4 | | , | 110 | | | |
| aaσ | ttt | σaa | aat | gat | acc | ctt | att | aat | aga | atc | gag | tta | aaa | ggt | att | 384 |
| _ | | _ | | - | | | - | | - | | - | | | | | |
| | | | 1 | | | | | _ | , | | | | - | _ | | |
| αat. | ttt | | σaa | σat. | σσα | aac | | ctt | σσa | cac | aaa | | σaa | tac | aat | 432 |
| | | | | | | | | | | | | | | | | |
| | | _10 | 014 | | 0-1 | | | | V-1 | | _ | | | -1- | | |
| tat | | tca | cat | aat | σta | | atc | atσ | αca | σac | | cca | ааσ | aat | aac | 480 |
| | | | | | | | | | | | | | | | | 100 |
| | 11011 | 001 | | 11011 | | -1- | 110 | | | | | | | | | |
| | 222 | att | 220 | ttc | | att | ana | cac | aac | | aaa | πat | σσα | age | | 528 |
| | | | | | | | | | | | | | | | | 320 |
| TTE | цуз | Val | ASII | | цуз | 116 | AIG | птэ | | TIE | цуз | тэр | GLY | | Vai | |
| | ++- | ~~~ | ~~ | | + > + | C 22 | 022 | 22t | | 003 | a++ | aa0 | aa t | | cot | 576 |
| | | | | | | | | | | | | | | | | 370 |
| GTII | ьeu | нта | _ | птр | TAT | GIII | GTII | | TIIT | PIO | TTE | стА | _ | ату | FIO | |
| ~+~ | a++ | ++- | | ~~~ | 222 | aa+ | + | | +00 | 3.00 | 022 | + <+ | | a++ | taa | 624 |
| - | | | | _ | | | | _ | | _ | | | _ | | | 024 |
| val | ьeu | Leu | PLO | ASP | ASI | HIS | TAL | reu | ser | THE | GTII | ser | нта | Leu | ser | |
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| 260 | | | 195 | | | | - | | | | | | 205 | | | | |
| 262 | aaa | gat | CCC | aac | gaa | aag | aga | gat | cac | atg | atc | ctt | ctt | gag | ttt [.] | gta | 672 |
| 263 | Lys | Asp | Pro | Asn | Glu | Lys | Arg | Asp | His | Met | Ile | Leu | Leu | Glu | Phe | Val | |
| 264 | | 210 | | | | | 215 | | | | | 220 | | | | | |
| 266 | aca | act | act | aaa | att | aca | cat | aac | atq | gat | qaa | cta | tac | aaa | taa | | 717 |
| | | | | | | | | Gly | | | | | | | | | |
| | 225 | | | | 110 | 230 | | 011 | | 1101 | 235 | 200 | -1- | | | | |
| | | -002 | tac f | ttoos | 2++ | | octas | aaggg | t ato | roga: | | | | | | | 757 |
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| | | | | ONO: | | | | | | | | | | | | | |
| | | | | H: 23 | 98. | | | | | | | | | | | | |
| | <212 | | | | _ | | | | | | | • | | | | | |
| | | | | | _ | iorea | a vic | ctori | La | | | | | | | | |
| | | | | VCE: | | | | | | | | | | | | | |
| 285 | Met | Ser | Lys | Gly | Glu | Glu | Leu | Phe | Thr | Gly | Val | Val | Pro | Ile | Leu | Val | |
| 286 | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| 289 | Glu | Leu | Asp | Gly | Asp | Val | Asn | Gly | Gln | Lys | Phe | Ser | Val | Ser | Gly | Glu | |
| 290 | | | | 20 | | | | | 25 | | | | | 30 | | | |
| | Gly | Glu | Gly | Asp | Ala | Thr | Tyr | Gly | Lys | Leu | Thr | Leu | Lys | Phe | Ile | Cys | |
| 294 | - | | 35 | - | | | - | 40 | • | | | | 45 | | | - | |
| | Thr | Thr | | Lvs | Len | Pro | Va 1 | | Trp | Pro | Thr | Leu | Val | Thr | Thr | Leu | |
| 298 | | 50 | | 2,5 | LCu | | 55 | 1 1.0 | | 1-0 | | 60 | | | | | |
| | Cor | | C117 | Val | Gln | Cvc | | Sor | Δra | ጥህን | Dro | | Hic | Met | T.v.c | Gln | |
| 302 | | urs | GTA | Vai | GIII | 70 | FIIC | 361 | ALG | TYL | 75 | тэр | птэ | Mec | шуз | 80 | |
| | | 3 | nh - | nh - | T | | 3 J = | Mat | D==0 | C1 | | m | 1707 | C1 ~ | C1., | | |
| | HIS | Asp | Pne | Pne | _ | ser | Ата | мет | Pro | | GTA | туг | vai | Gln | | Arg | |
| 306 | | | | _ | 85 | _ | _ | | _ | 90 | _ | | _ | | 95 | | |
| | Thr | He | Phe | _ | Lys | Asp | Asp | GTA | | Tyr | ьуs | Thr | Arg | Ala | GIU | vaı | |
| 310 | | | | 100 | | | | | 105 | | | | | 110 | | | |
| 313 | Lys | Phe | Glu | Gly | Asp | Thr | Leu | Val | Asn | Arg | Ile | Glu | Leu | Lys | Gly | Ile | |
| 314 | | | 115 | | | | | 120 | | | | | 125 | | | | |
| 317 | Asp | Phe | Lys | Glu | Asp | Gly | Asn | Ile | Leu | Gly | His | Lys | Met | Glu | \mathtt{Tyr} | Asn | |
| 318 | | 130 | | | | | 135 | | | | | 140 | | | | | |
| 321 | Tyr | Asn | Ser | His | Asn | Val | Tyr | Ile | Met | Ala | Asp | Lys | Pro | Lys | Asn | Gly | |
| 322 | 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| 325 | Ile | Lys | Val | Asn | Phe | Lys | Ile | Arg | His | Asn | Ile | Lys | Asp | Gly | Ser | Val | |
| 326 | | • | | | 165 | - | | _ | | 170 | | - | _ | _ | 175 | | |
| | Gln | Leu | Ala | Asp | | Tvr | Gln | Gln | Asn | Thr | Pro | Ile | Glv | Asp | Glv | Pro | |
| 330 | 0 | | | 180 | | -1- | | | 185 | | | | 1 | 190 | 1 | | |
| | Val | Τ.Δ11 | T.Ou | | Δen | Δsn | Hic | Tγr | | Ser | Thr | Gln | Ser | Ala | T.eu | Ser | |
| 334 | Val | LCu | 195 | 110 | пор | non | 1113 | 200 | Lcu | DCI | 1111 | 0111 | 205 | mu | шси | 001 | |
| 227 | T *** | A an | 133 |) an | Clu | Tvc | λνα | 200 7cn | uic | Mot | т1. | Lon | LOU | Glu | Dho | Val | |
| | гуѕ | | PIO | ASII | GIU | цуз | | АЅР | птэ | мес | TIE | | ьец | Giu | FIIE | Val | |
| 338 | m1 | 210 | | a 1 | -1- | ml | 215 | 01 | | • | a 1 | 220 | m | | | | |
| | | Ата | Ата | сту | тте | | HIS | Gly | met | ASP | | ьeu | ryr | гÀ2 | | | |
| 342 | | | | | _ | 230 | | | | | 235 | | | | | | |
| | | | | NO: | | | | | | | | | | | | | |
| | | | | I: 81 | .7 | | | | | | | | | | | | |
| | <212 | | | | | | | | | | | | | | | | |
| 351 | <213 | > OF | RGANI | SM: | Aequ | orea | ı vic | tori | .a | | | | | | | | |
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357 <221> NAME/KEY: CDS

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/619,310

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Input Set : A:\2001-09-28 seqlist.ST25.txt
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | gga | | | | | | | 48 |
| | | Ser | Lys | Gly | Glu | Glu | Leu | Phe | Thr | Gly | Val | Val | Pro | Ile | | Val | |
| 368 | | | | | 5 | | | | | 10 | | | | | 15 | | |
| | | | | | | | | | | aaa | | | | | | | 96 |
| 371 | Glu | Leu | Asp | Gly | Asp | Val | Asn | Gly | Gln | Lys | Phe | Ser | Val | Ser | Gly | Glu | |
| 372 | | | | 20 | | | | | 25 | | | | | 30 | | | |
| | | | | | | | | | | ctt | | | | | | | 144 |
| | Gly | Glu | _ | Asp | Ala | Thr | Tyr | _ | Lys | Leu | Thr | Leu | | Phe | Ile | Cys | |
| 376 | | | 35 | | | | | 40 | | | | | 45 | | | | |
| | | | | | | | | | | cca | | | | | | | 192 |
| | Thr | | Gly | Lys | Leu | Pro | | Pro | Trp | Pro | Thr | | Val | Thr | Thr | Leu | |
| 380 | | 50 | | | | | 55 | | | | | 60 | | | | | |
| | | | | | | | | | | tac | | | | | | | 240 |
| | | Tyr | Gly | Val | Gln | | Phe | Ser | Arg | \mathtt{Tyr} | | Asp | His | Met | Lys | | |
| 384 | | | | | | 70 | | | | | 75 | | | | | 80 | |
| | | | | | | | | | | gaa | | | | | | | 288 |
| | His | Asp | Phe | Phe | | Ser | Ala | Met | Pro | Glu | Gly | \mathtt{Tyr} | Val | Gln | | Arg | • |
| 388 | | | • | | 85 | | | | | 90 | | | | | 95 | | |
| | | | | | | - | - | | | tac | _ | | _ | - | _ | - | 336 |
| | Thr | Ile | Phe | _ | Lys | Asp | Asp | Gly | | Tyr | Lys | Thr | Arg | _ | Glu | Val | |
| 392 | | | | 100 | | | | | 105 | | | | | 110 | | | |
| | | | | | | | | | | aga | | | | | | | 384 |
| | Lys | Phe | | Gly | Asp | Thr | Leu | | Asn | Arg | Ile | Glu | | Lys | Gly | Ile | |
| 396 | | | 115 | | | | | 120 | | | | | 125 | | | | |
| | _ | | | - | - | | | | | gga | | | | | | | 432 |
| | Asp | | Lys | Glu | Asp | GLY | | He | Leu | Gly | His | | Met | Glu | Tyr | Asn | |
| 400 | | 130 | | | | | 135 | | | | | 140 | | | | | 400 |
| | | | | | | | | | | gca | | | | | | | 480 |
| | _ | Asn | Ser | HlS | Asn | | Tyr | тте | мет | Ala | | гàг | Pro | тÀг | Asn | _ | |
| 404 | | | | | | 150 | | | | | 155 | | | | | 160 | 500 |
| | | | | | | | | | | gta | | | | | | | 528 |
| | мет | GIU | Tyr | ASN | - | ASI | ser | HIS | ASN | Val | туг | тте | Met | Ald | | гуѕ | |
| 408 | | | | | 165 | | ~44 | | ++- | 170 | -++ | 200 | | 222 | 175 | | 576 |
| | | _ | | | | | - | | | aaa | | - | | | | | . 376 |
| | Pro | гаг | ASII | _ | тте | гàг | vaı | ASII | | Lys | тте | Arg | HIŻ | | тте | гаг | |
| 412 | ~~+ | ~~~ | | 180 | , | ++- | ~~~ | ~~~ | 185 | +-+ | a aa | a aa | 22+ | 190 | 003 | a++ | 624 |
| | | | | | | | | | | tat | | | | | | | 624 |
| 415 | ASP | СТА | 195 | Val | GIII | Leu | Ald | 200 | HIS | Tyr | GIII | GIII | 205 | 1111 | PIO | TTG | |
| | ~~~ | ~~+ | | aat | at a | a++ | ++- | | ~~~ | 220 | aa+ | + > 0 | | +00 | 200 | 022 | 672 |
| | | | | | | | | | | aac Asn | | | | | | | 072 |
| 419 | GTÅ | 210 | сту | P10 | ۷ат | теп | 215 | PIO | wah | HŞII | птэ | 220 | ьeu | 361 | T 11T | GTII | |
| | + a+ | | a++ | +00 | 222 | ant. | | 220 | 425 | aag | 2012 | | 020 | ato | atc | ct t | 720 |
| | | - | | | | - | | | - | Lys | - | _ | | | | | / 20 |
| 423 | | ита | ьеu | 3eT | пÃр | 230 | LIO | HOII | GIU | пуэ | 235 | vah | 1112 | MEL | TTE | 240 | |
| | | a 2 a | +++ | ate | 202 | | ac+ | ~~~ | 2++ | aca | | σσο | ato | nat | as a | | 768 |
| 420 | | gay | LLL | y ca | aca | gul | gut | 999 | all | aca | Cul | 990 | ucy | guc | gua | CLa | / 00 |

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/619,310

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TIME: 13:21:02

Input Set : A:\2001-09-28 seqlist.ST25.txt
Output Set: N:\CRF3\11022001\1619310.raw

L:19 M:270 C: Current Application Number differs, Replaced Current Application Number L:21 M:271 C: Current Filing Date differs, Replaced Current Filing Date